

GORDIAN®

Plumbing Costs

with RSMeans data



2020
43rd annual edition

GORDIAN®

Plumbing Costs with RSMeans data

Brian Adams, Senior Editor

2020

43rd annual edition

Chief Data Officer

Noam Reininger

Vice President, Data

Tim Duggan

Principal Engineer

Bob Mewis (1, 4)

Contributing Editors

Brian Adams (21, 22)

Paul Cowan

Christopher Babbitt

Sam Babbitt

Stephen Bell

Michelle Curran

Antonio D'Aulerio (26,
27, 28, 48)

Matthew Doheny (8,
9, 10)

John Gomes (13, 41)

Derrick Hale, PE (2, 31,
32, 33, 34, 35, 44, 46)

Barry Hutchinson

Joseph Kelble (14,
23, 25)

Scott Keller (3, 5)

Charles Kibbee

Gerard Lafond, PE

Thomas Lane (6, 7)

Thomas Lyons

Jake MacDonald (11, 12)

John Melin, P.E.

Elisa Mello

Matthew Sorrentino

Kevin Souza
David Yazbek

Production Manager

Debbie Panarelli

Production

Jonathan Forgit

Sharon Larsen

Sheryl Rose

Janice Thalín

**Data Quality
Manager**

Joseph Ingargiola

Innovation

Ray Diwakar

Kedar Gaikwad

Srini Narla

Cover Design

Blaire Collins

Data Analytics

David Byars

Ellen D'Amico

Thomas Hauger

Cameron Jagoe

Matthew Kelliher-

Gibson

Renee Rudicil



**Numbers in italics are the divisional responsibilities for each editor. Please contact the designated editor directly with any questions.*

RSMeans data from Gordian

Construction Publishers & Consultants

1099 Hingham Street, Suite 201

Rockland, MA 02370

United States of America

1.800.448.8182

RSMeans.com

Copyright 2019 by The Gordian Group Inc.

All rights reserved.

Cover photo © iStock/DenBoma

Printed in the United States of America

ISSN 1537-8411

ISBN 978-1-950656-15-8

Gordian's authors, editors, and engineers apply diligence and judgment in locating and using reliable sources for the information published. However, Gordian makes no express or implied warranty or guarantee in connection with the content of the information contained herein, including the accuracy, correctness, value, sufficiency, or completeness of the data, methods, and other information contained herein. Gordian makes no express or implied warranty of merchantability or fitness for a particular purpose. Gordian shall have no liability to any customer or third party for any loss, expense, or damage, including consequential, incidental, special, or punitive damage, including lost profits or lost revenue, caused directly or indirectly by any error or omission, or arising out of, or in connection with, the information contained herein. For the purposes of this paragraph, "Gordian" shall include The Gordian Group, Inc., and its divisions, subsidiaries, successors, parent companies, and their employees, partners, principals, agents and representatives, and any third-party providers or sources of information or data. Gordian grants the purchaser of this publication limited license to use the cost data

contained herein for purchaser's internal business purposes in connection with construction estimating and related work. The publication, and all cost data contained herein, may not be reproduced, integrated into any software or computer program, developed into a database or other electronic compilation, stored in an information storage or retrieval system, or transmitted or distributed to anyone in any form or by any means, electronic or mechanical, including photocopying or scanning, without prior written permission of Gordian. This publication is subject to protection under copyright law, trade secret law and other intellectual property laws of the United States, Canada and other jurisdictions. Gordian and its affiliates exclusively own and retain all rights, title and interest in and to this publication and the cost data contained herein including, without limitation, all copyright, patent, trademark and trade secret rights. Except for the limited license contained herein, your purchase of this publication does not grant you any intellectual property rights in the publication or the cost data.

0210

\$319.99 per copy (in United States)

Price is subject to change without prior notice.



Table of Contents

Foreword	iv
MasterFormat® Comparison Table	v
How the Cost Data Is Built: An Overview	vii
Estimating with RSMeans data: Unit Prices	ix
How to Use the Cost Data: The Details	xi
Unit Price Section	1
RSMeans data: Unit Prices—How They Work	2
Assemblies Section	467
RSMeans data: Assemblies—How They Work	468
Reference Section	577
Construction Equipment Rental Costs	579
Crew Listings	591
Historical Cost Indexes	628
City Cost Indexes	629
Location Factors	672
Reference Tables	678
Change Orders	715
Project Costs	719
Abbreviations	724
Index	728
Other Data and Services	751
Labor Trade Rates including Overhead & Profit	Inside Back Cover

Unit Price Section

Table of Contents

Sect. No.	Page	Sect. No.	Page	Sect. No.	Page	
	General Requirements	11 53	Laboratory Equipment	73	23 11 Facility Fuel Piping	333
01 11	Summary of Work	8	11 71 Medical Sterilizing Equipment	74	23 12 Facility Fuel Pumps	335
01 21	Allowances	8	11 73 Patient Care Equipment	75	23 13 Facility Fuel-Storage Tanks	335
01 31	Project Management and Coordination	10	11 74 Dental Equipment	75	23 21 Hydronic Piping and Pumps	338
01 32	Construction Progress Documentation	12	11 76 Operating Room Equipment	75	23 23 Refrigerant Piping	347
01 41	Regulatory Requirements	12	11 78 Mortuary Equipment	76	23 34 HVAC Fans	347
01 51	Temporary Utilities	12	11 81 Facility Maintenance Equipment	76	23 35 Special Exhaust Systems	348
01 52	Construction Facilities	12	11 91 Religious Equipment	76	23 38 Ventilation Hoods	350
01 54	Construction Aids	13	11 98 Detention Equipment	76	23 51 Breechings, Chimneys, and Stacks ...	350
01 55	Vehicular Access and Parking	16			23 52 Heating Boilers	350
01 56	Temporary Barriers and Enclosures ..	16			23 54 Furnaces	359
01 58	Project Identification	18			23 55 Fuel-Fired Heaters	359
01 66	Product Storage and Handling Requirements	18			23 56 Solar Energy Heating Equipment	360
01 74	Cleaning and Waste Management	18			23 57 Heat Exchangers for HVAC	363
01 91	Commissioning	19			23 72 Air-to-Air Energy Recovery Equipment	363
01 93	Facility Maintenance	19			23 81 Decentralized Unitary HVAC Equipment	363
	Existing Conditions				23 82 Convection Heating and Cooling Units	365
02 21	Surveys	22			23 83 Radiant Heating Units	366
02 41	Demolition	22			23 91 Prefabricated Equipment Supports ...	371
02 65	Underground Storage Tank Removal	24				Electrical
02 81	Transportation and Disposal of Hazardous Materials	24			26 05 Common Work Results for Electrical	374
02 82	Asbestos Remediation	25			26 24 Switchboards and Panelboards	381
02 87	Biohazard Remediation	28			26 29 Low-Voltage Controllers	382
	Concrete					Electronic Safety & Security
03 11	Concrete Forming	32			28 31 Intrusion Detection	384
03 15	Concrete Accessories	32			28 42 Gas Detection and Alarm	384
03 21	Reinforcement Bars	35			28 46 Fire Detection and Alarm	384
03 22	Fabric and Grid Reinforcing	36				Earthwork
03 30	Cast-In-Place Concrete	36			31 23 Excavation and Fill	388
03 31	Structural Concrete	37				Exterior Improvements
03 35	Concrete Finishing	38			32 12 Flexible Paving	404
03 63	Epoxy Grouting	38			32 84 Planting Irrigation	405
03 82	Concrete Boring	39				Utilities
	Metals				33 01 Operation and Maintenance of Utilities	410
05 05	Common Work Results for Metals ...	42			33 05 Common Work Results for Utilities	414
05 12	Structural Steel Framing	46			33 11 Groundwater Sources	416
05 54	Metal Floor Plates	46			33 14 Water Utility Transmission and Distribution	418
	Wood, Plastics & Composites				33 16 Water Utility Storage Tanks	427
06 11	Wood Framing	48			33 31 Sanitary Sewerage Piping	427
06 16	Sheathing	48			33 34 Onsite Wastewater Disposal	428
	Thermal & Moisture Protection				33 41 Subdrainage	429
07 65	Flexible Flashing	50			33 42 Stormwater Conveyance	430
07 71	Roof Specialties	51			33 52 Hydrocarbon Transmission and Distribution	434
07 72	Roof Accessories	51			33 61 Hydronic Energy Distribution	451
07 76	Roof Paviers	51			33 63 Steam Energy Distribution	453
07 84	Firestopping	52				Material Processing & Handling Equipment
07 91	Preformed Joint Seals	53			41 22 Cranes and Hoists	458
07 92	Joint Sealants	54				Pollution Control Equipment
	Finishes				44 11 Particulate Control Equipment	460
09 22	Supports for Plaster and Gypsum Board	58				Water and Wastewater Equipment
09 91	Painting	58			46 07 Packaged Water and Wastewater Treatment Equipment	464
	Specialties				46 23 Grit Removal And Handling Equipment	464
10 21	Compartments and Cubicles	62			46 25 Oil and Grease Separation and Removal Equipment	465
10 28	Toilet, Bath, and Laundry Accessories	64				
10 44	Fire Protection Specialties	66				
	Equipment					
11 11	Vehicle Service Equipment	70				
11 21	Retail and Service Equipment	70				
11 30	Residential Equipment	71				
11 32	Unit Kitchens	72				
11 41	Foodservice Storage Equipment	73				
11 44	Food Cooking Equipment	73				
11 46	Food Dispensing Equipment	73				
11 48	Foodservice Cleaning and Disposal Equipment	73				

Assemblies Section

Table of Contents

Table No.	Page
D SERVICES	
D2010 Plumbing Fixtures	
D2010 110 Water Closet Systems	474
D2010 120 Water Closets, Group	475
D2010 210 Urinal Systems	476
D2010 220 Urinal Systems, Battery Mount	477
D2010 310 Lavatory Systems	478
D2010 320 Lavatory Systems, Battery Mount	479
D2010 410 Kitchen Sink Systems	480
D2010 420 Laundry Sink Systems	481
D2010 430 Laboratory Sink Systems	482
D2010 440 Service Sink Systems	483
D2010 510 Bathtub Systems	484
D2010 610 Group Wash Fountain Systems	485
D2010 710 Shower Systems	486
D2010 810 Drinking Fountain Systems	487
D2010 820 Water Cooler Systems	488
D2010 920 Two Fixture Bathroom, Two Wall Plumbing	489
D2010 922 Two Fixture Bathroom, One Wall Plumbing	489
D2010 924 Three Fixture Bathroom, One Wall Plumbing	490
D2010 926 Three Fixture Bathroom, Two Wall Plumbing	490
D2010 928 Four Fixture Bathroom, Two Wall Plumbing	491
D2010 930 Four Fixture Bathroom, Three Wall Plumbing	491
D2010 932 Five Fixture Bathroom, Two Wall Plumbing	492
D2010 934 Five Fixture Bathroom, Three Wall Plumbing	492
D2010 936 Five Fixture Bathroom, One Wall Plumbing	492
D2010 951 Plumbing Systems 20 Unit, 2 Story Apartment Building	493
D2020 Domestic Water Distribution	
D2020 210 Electric Water Heaters - Residential Systems	494
D2020 220 Gas Fired Water Heaters - Residential Systems	495
D2020 230 Oil Fired Water Heaters - Residential Systems	496
D2020 240 Electric Water Heaters - Commercial Systems	497
D2020 250 Gas Fired Water Heaters - Commercial Systems	498
D2020 260 Oil Fired Water Heaters - Commercial Systems	499
D2020 265 Solar, Closed Loop, Add-On Hot Water Systems	501
D2020 270 Solar, Drainback, Hot Water Systems	503
D2020 275 Solar, Drindown, Hot Water Systems	505
D2020 280 Solar, Recirculation, Domestic Hot Water Systems	507
D2020 285 Thermosyphon, Hot Water	509
D2020 290 Solar, Hot Water, Air To Water Heat Exchange	511
D2020 295 Solar, Closed Loop, Hot Water Systems	513
D2040 Rain Water Drainage	
D2040 210 Roof Drain Systems	514
D3010 Energy Supply	
D3010 510 Apartment Building Heating - Fin Tube Radiation	516
D3010 650 Solar, Closed Loop, Space/Hot Water Systems	519
D3010 660 Solar Swimming Pool Heater Systems	521
D3010 675 Air To Water Heat Exchange	523

Table No.	Page
D3020 Heat Generating Systems	
D3020 102 Small Heating Systems, Hydronic, Electric Boilers	524
D3090 Other HVAC Systems/Equip	
D3090 320 Garage Exhaust Systems	525
D4010 Sprinklers	
D4010 310 Dry Pipe Sprinkler Systems	526
D4010 350 Preaction Sprinkler Systems	529
D4010 370 Deluge Sprinkler Systems	533
D4010 390 On-Off Multicycle Sprinkler Systems	535
D4010 410 Wet Pipe Sprinkler Systems	538
D4010 412 Wet Sprinkler Seismic Components	541
D4010 413 Seismic Wet Pipe Flexible Feed Sprinkler Systems	544
D4010 414 Seismic Wet Pipe Flexible Feed Sprinkler Systems	546
D4020 Standpipes	
D4020 310 Wet Standpipe Risers, Class I	548
Wet Standpipe Risers, Class II	548
Wet Standpipe Risers, Class III	549
D4020 330 Dry Standpipe Risers, Class I	550
Dry Standpipe Risers, Class II	550
Dry Standpipe Risers, Class III	551
D4020 410 Fire Hose Equipment	552
D4090 Other Fire Protection Systems	
D4090 910 Fire Suppression Unit Components	553
D4090 920 FM200 Systems	553
G BUILDING SITEWORK	
G1030 Site Earthwork	
G1030 805 Trenching Common Earth	556
G1030 806 Trenching Loam & Sandy Clay	558
G1030 807 Trenching Sand & Gravel	560
G1030 815 Pipe Bedding	562
G2040 Site Development	
G2040 920 Swimming Pools	564
G2050 Landscaping	
G2050 710 Site Irrigation	565
G2050 720 Site Irrigation	568
G3010 Water Supply	
G3010 121 Water Service, Lead Free	569
G3010 410 Fire Hydrants	571
G3020 Sanitary Sewer	
G3020 302 Septic Systems	573
G3030 Storm Sewer	
G3030 210 Manholes & Catch Basins	575

Reference Section

All the reference information is in one section, making it easy to find what you need to know and easy to use the data set on a daily basis. This section is visually identified by a vertical black bar on the page edges.

In this Reference Section, we've included Equipment Rental Costs, a listing of rental and operating costs; Crew Listings, a full listing of all crews and equipment, and their costs; Historical Cost Indexes for cost comparisons over time; City Cost Indexes and Location Factors for adjusting costs to the region you are in; Reference Tables, where you will find explanations, estimating information and procedures, and technical data; Change Orders, information on pricing changes to contract documents; and an explanation of all the Abbreviations in the data set.

Table of Contents

Construction Equipment Rental Costs

579

Crew Listings

591

Historical Cost Indexes

628

City Cost Indexes

629

Location Factors

672

Reference Tables

678

R01 General Requirements..... 678

R02 Existing Conditions 692

R03 Concrete..... 693

R05 Metals 694

R13 Special Construction 694

R21 Fire Suppression 694

Reference Tables (cont.)

R22 Plumbing 698

R23 Heating, Ventilating &
Air Conditioning..... 708

R26 Electrical..... 711

R31 Earthwork 712

R33 Utilities..... 714

Change Orders 715

Project Costs 719

Abbreviations 724